



Seminar Announcement

Cellular Thermal Shift Assay (CETSA) as tool for solving the mysteries in antimalarial drug mode of action (MOA)

Date: 20 November 2020, Friday

Time: 4pm

Venue: Classroom 1, SBS

Combination of quantitative mass spectroscopy with cellular thermal shift protein assays (CETSA) has recently emerged as a powerful tool for identifications of direct protein targets of a wide range of drugs. In our work, we adopted CETSA to study the intracellular parasite of human malaria, *Plasmodium falciparum*. At first we wished to identify drug targets of antimalarial drugs that were in clinical use for over a half century but until now no clear factors of their MOA are known. Contrary to the general believe that most antimalarial drugs have a pluripotent effect within the parasite cell, we identified several clear protein targets. These include a purine nucleoside phosphorylate for quinine and a metalloprotease, falcilysin, for chloroquine. Based on these results falcilysin is emerging as a highly potent antimalarial target with a promiscuous binding pocket for several classes of antimalarial drug including other clinically relevant quinolines as well as several new novel drug candidates. Although CETSA is emerging as a powerful method to decipher antimalarial drugs MOA, many challenges still remain for its full-fledged applications for (other) malarials and antimicrobials in general. Some of the challenges and future perspectives will be discussed.



Speaker:

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